CLAIMS

What is claimed is:

1. An image processing apparatus comprising:

an original stage;

a scanner establishing at least one scan region at the original stage, scanning the scan region established at the original stage, and outputting image data corresponding to the scan region;

an image processor accepting input of image data and carrying out processing on the image data; and

a controller controlling the scanner and the processor, and carrying out operations in accordance with any of one or more operational modes including a first operational mode;

wherein the controller, when carrying out operations in accordance with the first operational mode,

controls the scanner so as to cause the scanner to establish the scan region such that the scan region matches or is larger than a copy subject region at the original stage and such that the copy subject region is encompassed by the scan region; and

controls the image processor so as to cause the image processor to accept input from the scanner of image data corresponding to the scan region and to output enlarged image data obtained by enlarging, so as to be larger than a dimension or dimensions of the print medium in either a horizontal direction or a vertical direction or in both a horizontal direction and a vertical direction, image data corresponding to the copy subject region that is encompassed by image data corresponding to the scan region.

2. An image processing apparatus according to claim 1 further comprising a printer using image data output by the image processor to carry out printing at the print medium.

3. An image processing apparatus according to claim 1 wherein the controller assumes existence of a region corresponding to an original placed on the original stage based on a

3   previously specified original size, and deems that the assumed region corresponding to the

4   original is to be the copy subject region.

1   4.   An image processing apparatus according to claim 1 wherein the controller detects a

2   region corresponding to an original placed on the original stage through use of the scanner,

3   and deems that the detected region corresponding to the original is to be the copy subject

4   region.

1   5.   An image processing apparatus according to claim 1 wherein an arbitrary region at the

2   original stage is specified by a user, and the controller deems that the region specified by the

3   user is to be the copy subject region.

1   6.   An image processing apparatus according to claim 1 wherein the controller detects a

2   copy subject within an original placed on the original stage through use of the scanner,

3   establishes a region encompassing the detected copy subject, and deems that the established

4   region is to be the copy subject region.

1   7.   An image processing apparatus according to claim 4 wherein:

2   the scanner prescans the original stage prior to scanning of the scan region and outputs

3   prescan image data corresponding to the original stage; and

4   the controller detects a region corresponding to the original based on the original stage

5   prescan image data.

1   8.   An image processing apparatus according to claim 3 wherein:

2   the scanner prescans the original stage prior to scanning of the scan region and outputs

3   prescan image data corresponding to the original stage; and

4   the controller detects the copy subject based on the original stage prescan image data.

1   9.   An image processing apparatus according to claim 2 wherein:

2   the controller controls the printer so as to cause a positional relationship of a print start

3   location relative to the print medium to vary in correspondence to a magnification employed

4   when the image processor enlarges image data corresponding to the copy subject region.

ſ   10.   An image processing apparatus according to claim 1 further comprising:

2   image input circuitry accepting input of image data from an image-containing-data

3 source other than the scanner;

4   wherein the one or more operational modes include a second operational mode; and

5   the controller, when carrying out operations in accordance with the second operational

6 mode, controls the image processor so as to cause the image processor to output enlarged

7 image data obtained by enlarging, so as to be larger than a size of the print medium, a region

8 subject to printing that is within image data input from the image-containing-data source by

9 the image input circuitry.

1   11.   An image processing apparatus according to claim 1 or claim 10 further comprising:

2   image input circuitry accepting input of image data from an image-containing-data

3 source other than the scanner;

4   wherein the one or more operational modes include a third operational mode; and

5   the controller, when carrying out operations in accordance with the third operational

6 mode, controls the image processor so as to cause the image processor to create and output

7 superposed image data which is such that a region subject to printing in image data from the

8 image-containing-data source input by the image input circuitry and image data corresponding

9 to the copy subject region that is encompassed by image data corresponding to the scan region

10 which is output from the scanner are superposed, and such that either the region subject to

11 printing or the copy subject region or both the region subject to printing and the copy subject

12 region is or are enlarged so as to be larger than a size of the print medium.

1   12.   An image processing method capable of being carried out by scanner circuitry that

2 scans an original stage and image processing circuitry that processes scan image data from the

3 scanner circuitry, the image processing method comprising:

4   a step in which at least one scan region is established such that the scan region matches

5 or is larger than a copy subject region at the original stage and such that the copy subject

6 region is encompassed by the scan region;

7   a step in which the scan region is scanned and image data corresponding to the scan

8   region is obtained;

9   a step in which image data corresponding to the copy subject region that is

10   encompassed by the obtained image data corresponding to the scan region is enlarged so as to

11   be larger than a dimension or dimensions of the print medium in either a horizontal direction or

12   a vertical direction or in both a horizontal direction and a vertical direction; and

13   a step in which the enlarged image data corresponding to the copy subject region is

14   output.

1   13.   An image processing method according to claim 12 further comprising a step in which

2   the enlarged image data corresponding to the copy subject region is used to carry out printing

3   at the print medium.

1   14.   A computer program that when executed by a computer causes the computer to

2   control scanner circuitry which scans an original stage and image processing circuitry which

3   processes scan image data from the scanner circuitry, the computer program comprising:

4   a program segment for causing at least one scan region to be established such that the

5   scan region matches or is larger than a copy subject region at the original stage and such that

6   the copy subject region is encompassed by the scan region;

7   a program segment for controlling the scanner circuitry so as to cause the scan region

8   to be scanned and image data corresponding to the scan region to be obtained;

9   a program segment for controlling the image processing circuitry so as to cause image

10   data corresponding to the copy subject region that is encompassed by the obtained image data

11   corresponding to the scan region to be enlarged so as to be larger than a dimension or

12   dimensions of the print medium in either a horizontal direction or a vertical direction or in both

13   a horizontal direction and a vertical direction; and

14   a program segment for controlling the image processing circuitry so as to cause the

15   enlarged image data corresponding to the copy subject region to be output.

15. A computer program according to claim 14 further comprising a program segment for controlling a printing apparatus so as to cause printing to be carried out at the print medium using the enlarged image data corresponding to the copy subject region.

16. An image processing apparatus comprising:

an original stage;

a scanner establishing at least one scan region at the original stage, scanning the scan region established at the original stage, and outputting image data corresponding to the scan region;

an image processor accepting input of image data, carrying out processing on the input image data, and outputting processed image data; and

a controller controlling the scanner and the processor, and carrying out operations in accordance with any of one or more operational modes including a first operational mode;

wherein the controller, when carrying out operations in accordance with the first operational mode,

controls the scanner so as to cause the scanner to establish the scan region such that the scan region is smaller than a copy subject region at the original stage and such that the scan region is encompassed by the copy subject region; and

controls the image processor so as to cause the image processor to accept input of image data corresponding to the scan region and output by the scanner, and to output enlarged image data obtained by enlarging, so as to be larger than a size of the print medium, image data corresponding to the scan region.

17. An image processing apparatus according to claim 16 further comprising a printer using image data output by the image processor to carry out printing at the print medium.

18. An image processing apparatus according to claim 16 wherein the controller assumes existence of a region corresponding to an original placed on the original stage based on a previously specified original size, and deems that the assumed region corresponding to the original is to be the copy subject region.

1. 19. An image processing apparatus according to claim 16 wherein the controller detects a

2 region corresponding to an original placed on the original stage through use of the scanner,

3 and deems that the detected region corresponding to the original is to be the copy subject

4 region.

1 20. An image processing apparatus according to claim 16 wherein an arbitrary region at

2 the original stage is specified by a user, and the controller deems that the region specified by

3 the user is to be the copy subject region.

1 21. An image processing apparatus according to claim 16 wherein the controller detects a

2 copy subject within an original placed on the original stage through use of the scanner,

3 establishes a region encompassing the detected copy subject, and deems that the established

4 region is to be the copy subject region.

1 22. An image processing apparatus according to claim 16 wherein:

2 the controller causes the scan region to be established such that the scan region is

3 smaller by a prescribed scanner margin than the copy subject region;

4 the image processor enlarges image data corresponding to the scan region so as to

5 cause the enlarged image data corresponding to the scan region to be larger by a prescribed

6 printer margin than the print medium in either a horizontal direction or a vertical direction or

7 in both a horizontal direction and a vertical direction; and

8 the scanner margin is smaller than the printer margin.

1 23. An image processing apparatus according to claim 16 wherein:

2 the controller controls the printer so as to cause a positional relationship of a print start

3 location relative to the print medium to vary in correspondence to a magnification employed

4 when the processor enlarges image data corresponding to the copy subject region.

1 24. An image processing apparatus according to claim 16 further comprising:

2 image input circuitry accepting input of image data from an image-containing-data

3 source other than the scanner;

4 wherein the one or more operational modes include a second operational mode; and

5   the controller, when carrying out operations in accordance with the second operational

6   mode, controls the image processor so as to cause the image processor to output enlarged

7   image data obtained by enlarging, so as to be larger than a size of the print medium, a region

8   subject to printing that is within image data input from the image-containing-data source by

9   the image input circuitry.

1   25.   An image processing apparatus according to claim 16 or claim 24 further comprising:

2   image input circuitry accepting input of image data from an image-containing-data

3   source other than the scanner;

4   wherein the one or more operational modes include a third operational mode; and

5   the controller, when carrying out operations in accordance with the third operational

6   mode, controls the image processor so as to cause the image processor to create and output

7   superposed image data which is such that a region subject to printing in image data from the

8   image-containing-data source input by the image input circuitry and image data corresponding

9   to the copy subject region that is encompassed by image data corresponding to the scan region

10   which is output from the scanner are superposed, and such that either the region subject to

11   printing or the copy subject region or both the region subject to printing and the copy subject

12   region is or are enlarged so as to be larger than a size of the print medium.

1   26.   An image processing method capable of being carried out by scanner circuitry that

2   scans an original stage and image processing circuitry that processes scan image data from the

3   scanner circuitry, the image processing method comprising:

4   a step in which at least one scan region is established such that the scan region is

5   smaller than a copy subject region at the original stage and such that the scan region is

6   encompassed by the copy subject region;

7   a step in which the scan region is scanned and image data corresponding to the scan

8   region is obtained;

9   a step in which the obtained image data corresponding to the scan region is enlarged so

10   as to be larger than a dimension or dimensions of the print medium in either a horizontal

11 direction or a vertical direction or in both a horizontal direction and a vertical direction; and

12   a step in which the enlarged image data corresponding to the copy subject region is

13 output.

1 27. An image processing method according to claim 16 further comprising a step in which

2 the enlarged image data corresponding to the copy subject region is used to carry out printing

3 at the print medium.

1 28. A computer program that when executed by a computer causes the computer to

2 control scanner circuitry which scans an original stage and image processing circuitry which

3 processes scan image data from the scanner circuitry, the computer program comprising:

4   a program segment for causing at least one scan region to be established such that the

5 scan region is smaller than a copy subject region at the original stage and such that the scan

6 region is encompassed by the copy subject region;

7   a program segment for controlling the scanner circuitry so as to cause the scan region

8 to be scanned and image data corresponding to the scan region to be obtained;

9   a program segment for controlling the image processing circuitry so as to cause the

10 obtained image data corresponding to the scan region to be enlarged so as to be larger than a

11 dimension or dimensions of the print medium in either a horizontal direction or a vertical

12 direction or in both a horizontal direction and a vertical direction; and

13   a program segment for controlling the image processing circuitry so as to cause the

14 enlarged image data corresponding to the scan region to be output.

1 29. An image processing apparatus comprising:

2   an original stage;

3   a scanner scanning at least one scan region at the original stage and outputting image

4 data corresponding to the scan region;

5   an image processor processing image data corresponding to the scan region from the

6 scanner, creating print image data, and outputting the print image data; and

7   a controller selecting any mode from among at least two of a plurality of varieties of

8   copy modes including a normal copy mode, a borderless copy mode, and a unity magnification

9   copy mode, and controlling the image processor in correspondence to the selected mode;

10   wherein the controller

11   (1) when the normal copy mode is selected: controls the image processor so as to

12   cause the print image data to be smaller than dimensions of the print medium in both a

13   horizontal direction and a vertical direction;

14   (2) when the borderless copy mode is selected: controls the image processor so as to

15   cause the print image data to be larger than a dimension or dimensions of the print medium in

16   either a horizontal direction or a vertical direction or in both a horizontal direction and a

17   vertical direction; and

18   (3) when the unity magnification copy mode is selected: controls the image processor

19   so as to cause a size of the print image data to be the same as a size of image data

20   corresponding to the scan region.

1   30.   An image processing apparatus according to claim 29 further comprising a printer

2   using the print image data from the image processor to carry out printing at the print medium.

1   31.   An image processing apparatus according to claim 30 wherein:

2   the controller controls the printer so as to cause a positional relationship of a print start

3   location relative to the print medium to vary in correspondence to the selected mode.

1   32.   An image processing method capable of being carried out by scanner circuitry that

2   scans an original stage and image processing circuitry that processes scan image data from the

3   scanner circuitry, the image processing method comprising:

4   a step in which at least one scan region at the original stage is scanned and image data

5   corresponding to the scan region is obtained;

6   a step in which obtained image data corresponding to the scan region is processed and

7   print image data is created;

8   a step in which the print image data is output; and

9   a step in which any mode is selected from among at least two of a plurality of varieties

10 of copy modes including a normal copy mode, a borderless copy mode, and a unity

11 magnification copy mode;

12 wherein the step in which print image data is created includes

13 (1) in the event that the normal copy mode is selected: a step in which a size of the

14 print image data is controlled so as to cause the print image data to be smaller than dimensions

15 of the print medium in both a horizontal direction and a vertical direction;

16 (2) in the event that the borderless copy mode is selected: a step in which a size of the

17 print image data is controlled so as to cause the print image data to be larger than a dimension

18 or dimensions of the print medium in either a horizontal direction or a vertical direction or in

19 both a horizontal direction and a vertical direction; and

20 (3) in the event that the unity magnification copy mode is selected: a step in which a

21 size of the print image data is controlled so as to be the same as a size of image data

22 corresponding to the scan region.

1 33. A computer program that when executed by a computer causes the computer to

2 control scanner circuitry which scans an original stage and image processing circuitry which

3 processes scan image data from the scanner circuitry, the computer program comprising

4 a program segment for controlling the scanner circuitry so as to cause at least one scan

5 region at the original stage to be scanned and image data corresponding to the scan region to

6 be obtained;

7 a program segment for controlling the image processor circuitry so as to cause

8 obtained image data corresponding to the scan region to be processed, and so as to cause print

9 image data to be created and output; and

10 a program segment for causing any mode to be selected from among at least two of a

11 plurality of varieties of copy modes including a normal copy mode, a borderless copy mode,

12 and a unity magnification copy mode;

13 wherein the program segment for controlling the image processor circuitry includes

14 (1) in the event that the normal copy mode is selected: a program segment for causing

15 a size of the print image data to be controlled so as to cause the print image data to be smaller

16 than dimensions of the print medium in both a horizontal direction and a vertical direction;

17   (2) in the event that the borderless copy mode is selected: a program segment for

18 causing a size of the print image data to be controlled so as to cause the print image data to be

19 larger than a dimension or dimensions of the print medium in either a horizontal direction or a

20 vertical direction or in both a horizontal direction and a vertical direction; and

21   (3) in the event that the unity magnification copy mode is selected: a program segment

22 for causing a size of the print image data to be controlled so as to be the same as a size of

23 image data corresponding to the scan region.